REMARKS

Applicants respond hereby to the outstanding Office Action dated December 15, 2006. Claim 1 is amended hereby, claims 2 and 4, which depend from claim 1, are original claims, and claims 28-33 are newly presented. New claim 28 depends from original claim 4, and new claims 29-33 depend from claim 1. Claims 3, 5-8 and 10-27 were previously withdrawn, and claim 9 was previously cancelled by the Preliminary Amendment filed December 19, 2003.

In the outstanding Office Action, the drawings were objected to under 37 CFR 1.83(a). To support the objection, the Examiner asserts that the "predetermined range" must be shown or the features cancelled from the claims.

In response, applicants have amended the Specification at the paragraph beginning at line 24 of page 15, where R1 is now described as a lower limit value in a predetermined range of target value R including the neutral reference position where both wires 4 and 5 become loose, and R2 is an upper limit in the predetermined range of target value R. Applicants believe that the amended language renders clear the "predetermined range" in any and all of the pending claims, and respectfully request withdrawal of the objection to the drawings under 1.83(a).

Claims 1, 2 and 4 were rejected under 35 USC 102(e) as anticipated by US Patent No. 4,286,585 to Ogawa. In particular with respect to independent claim 1, the Examiner asserts that Ogawa discloses a hauling unit (Fig. 9, 100) that hauls a subject to bend or rotate the subject, a control unit (Fig. 9, 42, 44, 50) that outputs a control signal corresponding to a target value (Fig. 9, E48) input by an operating unit, and the control unit controls a variation amount of the control signal output in a predetermined range including a position of the hauling unit in a state before the hauling unit hauls the subject to be greater than a variation amount of the control signal outside the predetermined range (col. 4/5, lines 56-68, and lines 1-13, respectively), and a driving unit (Fig. 9, 46 and 40) that drives the hauling unit based on the control signal.

Applicants respectfully disagree, particularly in view of the amendments to independent claim 1, from which all of the other pending claims depend. That is, amended independent claim 1 sets forth an apparatus for traction positional control including a hauling unit that hauls a subject to bend or rotate the subject, and a control unit that outputs a control signal. The control signal is controlled to correspond to a target value that is input by an

operating unit. The control unit controls a first variation amount to be greater than a second variation amount, wherein the first variation amount is included in the control signal where the control signal lies within a predetermined range. But the control signal includes the second variation amount in the control signal where the control signal is found to lie outside the predetermined range. The predetermined range is relative to a pre-hauling tension state of the hauling unit. A driving unit drives the hauling unit responsively to the input target value based on the control signal as controlled by the first or second variation amounts.

Applicants intend their instant invention (including the claim 1 embodiment) to control distal end bending in a way that causes the apparatus to be instantly responsive to bending control inputs, even where there is improper tension in a hauling unit at the time a user inputs a control, e.g., joystick operation. In their specification, applicants readily explain this novel operation, and the advantages with the text beginning at the paragraph that begins at page 14, line 19, and extends through the paragraph ending on page 16, line 10. Applicants' specification asserts that "[i]n such as state, even if attempt is made to bend the distal bending section 2 (Applicants Figs. 1-5) in any of upper and lower directions, the distal bending section 2 is not bent until the motor 9 is rotated to a position where the slack of the wire [in the hauling unit] in that direction is resolved."

Ogawa is readily distinguishable from amended claim 1, and the pending claims depending therefrom. Ogawa is intended for the broad purpose of controlling the bending or distal portion, but not in order to improve apparatus responsiveness to user bending command input by addressing the problem of operating the hauling unit in a slack state. Ogawa discloses an endoscope whose distal portion is automatically controlled in order that the distal end portion is always directed to the substantial center of the cross section of a celiac tube, and not press against an inner wall of a colon of a subject under endoscopic investigation. Ogawa indicates that the potential for pressing against the colon inner wall occurs when the insertion portion is bent. Ogawa includes bend angle control devices and means for controlling the bend angle with a servo motor 40, bending mechanism 48 and bend angle converter 50.

Ogawa's Fig. 9 and referenced text describes Ogawa's bend angle control device 100, including reference signal E42, substantially as follows. Reference signal E42 is derived from reference input generator 42 and provided to difference detector 44. An output difference signal E44 is generated by the difference detector is amplified and supplied to servo motor 40 by

as amplified difference drive signal E46. The servo motor drives the bending mechanism 48 based on the magnitude of drive signal E46 and its polarity. A bend angle control signal E48 denotes the angle through which the distal end portion is transmitted to bend angle converter 50. The bend angle converter 50 supplies the difference detector with a comparison signal E50, and subtracts it from E42 in difference detector 44. Difference signal E44 denotes a difference between the reference signal E42 and comparison signal E50.

Ogawa's signal E48 does not refer to applicants' control signal corresponding to a target value, as asserted by the Examiner. And with all due respect, Ogawa's Fig. 9 does not show the operation of Ogawa's hauling units 34, 38, in response to user input, still less how the apparatus is arranged to operate responsively to user input (target value) and haul the object seamlessly even where a hauling unit tension is in a pre-hauling, or non-ideal tension state. That is, even where there is slack in a hauling unit, the instant invention as claimed adjusts for the slack, or tension states in the hauling unit that are not ideal, and accommodates for said tension states in a way that the apparatus appears substantially responsive to the user's target value input.

For that matter, while the Examiner asserts that the variation amounts as claimed are discussed at Ogawa's col. 4, lines 56-58, and col. 5, lines 1-13, the claims as amended are believed to clarify the differences between Ogawa and claim 1, which support patentability under Section 102. Ogawa's cited figure and text do not suggest that Ogawa were concerned with slack in its hauling units, overcoming user-input non-responsiveness in such a slack state, or with modifying control signals to maintain user input responsiveness. Ogawa does not teach or suggest a control unit that controls " a variation amount of the control signal output in a predetermined range including a position of the hauling unit in a state before the hauling unit hauls the subject to be greater than a variation amount of the control signal output outside the predetermined range," as claimed. Nor does Ogawa teach that "the variation amount of the control signal output in a predetermined range" or the "variation amount of the control signal output outside the predetermined range."

That is, Ogawa does not adjust a control signal for controlling a hauling unit for bending control, and certainly does not adjust such a control signal in varying amounts based on where the control signal lies in a specific predetermined range, which is a limitation included in each of applicants' claims.